

AMENDMENT TO THE CLAIMS

Please amend the claims without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents as follows:

1-24. (Cancelled)

25. (New) An infectivity-enhanced conditionally replicative adenovirus having (a) a modified fiber protein containing a ligand, by the conditionally replicative adenovirus containing and expressing a nucleotide sequence encoding the ligand, and wherein the ligand comprises Arg-Gly-Asp in the HI loop of the fiber; or the modified conditionally replicative adenovirus containing a fiber knob domain from a different subtype of adenovirus; whereby the ligand or fiber knob domain provides a pathway to cell binding by the modified conditionally replicative adenovirus other than the coxsackie-adenovirus receptor, and thereby enhances infectivity of the conditionally replicative adenovirus in tumor cells over that of wild-type adenovirus; further comprising (b) a tumor-specific promoter operably linked to one or more early genes selected from the group consisting of E1, E2 and E4.

26. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 25 wherein the tumor-specific promoter is from a gene encoding a protein selected from the group consisting of prostate specific antigen, carcinoembryonic antigen, secretory leukoprotease inhibitor, alpha-fetoprotein, vascular endothelial growth factor, CXCR4 and survivin.

27. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 25, wherein the modified conditionally replicative adenovirus has the modified fiber protein containing the ligand comprising Arg-Gly-Asp in the HI loop.

28. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 25, wherein the modified conditionally replicative adenovirus has the fiber domain from a different subtype of adenovirus.

29. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 28, wherein the modified conditionally replicative adenovirus is a subtype 5 having the fiber domain from an adenovirus subtype 3.

30. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 25 wherein the modified conditionally replicative adenovirus provides a pathway to cell binding by the adenovirus other than the coxsackie-adenovirus receptor by containing a ligand, and the ligand has the sequence of SEQ. ID. NO: 1.

31. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 25 wherein the modified conditionally replicative adenovirus is additionally modified by containing and expressing an exogenous nucleotide sequence encoding a therapeutic polypeptide.

32. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 31 wherein said therapeutic gene is a herpes simplex virus thymidine kinase gene.

33. (New) The infectivity-enhanced conditionally replicative adenovirus of claim 25 wherein the tumor-specific promoter is operably linked to one or more early genes selected from the group consisting of E2 and E4, and wherein the nucleotide sequences encoding E1 are deleted, further comprising an E1-transcomplementation plasmid wherein E1a and E1b sequences are in tandem but oriented in opposite 5' to 3' direction.

34. (New) A method of reducing tumor burden in a subject in need thereof comprising administering to the subject a therapeutically effective amount of a modified conditionally replicative adenovirus;

said modified conditionally replicative adenovirus having greater infectivity in tumor cells than wild-type adenovirus, and hence is modified, by:

the modified conditionally replicative adenovirus is a subtype 5 containing and expressing a nucleotide sequence encoding the fiber domain from an adenovirus subtype 3;

whereby the fiber knob domain provides a pathway to cell binding by the modified conditionally replicative adenovirus other than the coxsackie-adenovirus receptor, and thereby enhances infectivity of the of the conditionally replicative adenovirus in tumor cells over that of wild-type adenovirus,

and wherein the modified conditionally replicative adenovirus contains a nucleotide sequence encoding VEGF promoter region, such that the infectivity enhanced conditionally replicative adenonovirus replicates more efficiently in tumor cells than in most normal cell types.

35. (New) The method of claim 34 wherein the modified conditionally replicative adenovirus suppresses tumor growth of non-small cell lung cancer.

36. (New) The method of claim 34 wherein the modified conditionally replicative adenovirus suppresses tumor growth of ovarian cancer.

37. (New) The method of claim 34 wherein the modified conditionally replicative adenovirus suppresses tumor growth of gastric cancer.

38. (New) The method of claim 34 wherein the modified conditionally replicative adenovirus suppresses tumor growth of pancreatic cancer.

39. (New) The method of claim 34 wherein the modified conditionally replicative adenovirus does not cause hepatic injury.

40. (New) The method of claim 34 wherein the modified conditionally replicative adenovirus is additionally modified by containing and expressing an exogenous nucleotide sequence encoding a therapeutic polypeptide.

41. (New) The method of claim 40 wherein said therapeutic gene is a herpes simplex virus thymidine kinase gene

42. (New) The method of claim 41 comprising administering to the patient in need thereof an effective amount of the conditionally replicative adenovirus and further comprising administering ganciclovir to the patient.

43. (New) A method of reducing tumor burden in a subject in need thereof comprising administering to the subject a therapeutically effective amount of a modified conditionally replicative adenovirus;

said modified conditionally replicative adenovirus having greater infectivity in tumor cells than wild-type adenovirus, and hence is modified, by:

containing and expressing a nucleotide sequence encoding the knob domain of the canine adenovirus type 2;

whereby the knob domain provides a pathway to cell binding by the modified conditionally replicative adenovirus other than the coxsackie-adenovirus receptor, and thereby enhances infectivity of the of the conditionally replicative adenovirus in tumor cells over that of wild-type adenovirus,

and wherein the modified conditionally replicative adenovirus contains a nucleotide sequence encoding either CXCR4 or survivin promoters, such that the infectivity enhanced conditionally replicative adenonovirus replicates more efficiently in tumor cells than in most normal cell types.

44. (New) The method according to claim 43 wherein the modified conditionally replicative adenovirus suppresses tumor growth of human breast cancer.